

## Battaglia, Frank

**From:** Joseph F Guarnaccia <joseph.guarnaccia@basf.com>  
**Sent:** Tuesday, March 20, 2018 1:27 PM  
**To:** Battaglia, Frank  
**Cc:** Rick Kowalski  
**Subject:** CMI reuse edits  
**Attachments:** BASF Cranston Lot 1102 CMI\_REVISED REUSE edits.docx

*NEGOTIATE  
NEW TERMS  
3/22/18 w/ Joe*

Frank

Based on my phone message, BASF needs to be generic on future use of this river lot. While we intend to complete the cap with a vegetative support layer including elements of native upland habitat (as is in the CMI), we do not have definitive plans on reuse. E.g., it may include such uses as:

- BASF retains w/o public access
- BASF retains w/ public access
- City retains with open space and dog park.
- Safety Kleen retains and uses upper corner (outside of the 200' river setback) for parking, the remainder remains as open space.

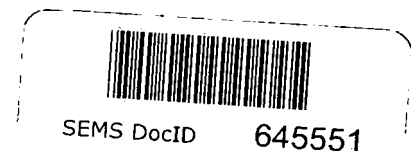
Attached is the CMI text with 5 yellow highlight changes that need to be made.

It is important to make these edits because we cannot promise things we cannot deliver.

Let's discuss, and assuming you agree Rick will send out another electronic version and send out the 5 replacement pages.

**Joe.**  
EHS Remediation Specialist

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1. ~~Property reuse as open space in perpetuity only.~~

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2. No residential use allowed except as may be approved by the Department as a Recreational Facility for Public Use under the RIDEM remedial regulations.
3. No groundwater uses except as required for remedy monitoring.
4. Operation and maintenance of the surface cover areas and vegetative support as per an EPA-approved O&M plan.
5. Annual reporting to the RIDEM for ELUR compliance.
6. No invasive work below the covered areas is allowed without implementing a RIDEM-approved soil and groundwater management plan and clean soil cover integrity plan (e.g., as may be required for utility maintenance).

Through October 2017, the EPA has received the following comments related to Lot 1102 as part of the public review and comment process:

1. General public: The main comments related to the feasibility of removing the proposed soil quantities from the property and replacing it with clean soil and the truck traffic that the project would generate on the residential streets between the property and the highway, with an elementary school along the way. Specifically, the question was posed whether there is a way to limit the number of trucks and their frequency during school hours.
2. BASF: BASF commented on the feasibility of uniformly removing all PCB-impacted soil greater than 10 mg/kg. Specifically, based on the results of the soil IRM completed in 1995, and subsequent sampling through the 2016 RCRA Site investigation, it is apparent to BASF that the presence of subsurface infrastructure (concrete slabs and foundations) will impede if not limit BASF's ability to achieve the 10 mg/kg remediation goal described in the SOB.
3. RIDEM: RIDEM commented on the fact that its Remedial Regulations require, as a default, that to consider Lot 1102 for future use as a potential recreational facility for public use, and to protect the groundwater resource, the residual PCB content in soil must be less than or equal to 10 mg/kg, but that site-specific remedial objectives may be considered given EPA concurrence.

To address these perceived important considerations, while meeting the remedy objectives, i.e., limit direct contact and mobility metrics while meeting TSCA and RIDEM regulations, **BASF proposed to the EPA and RIDEM the following modifications to the soil remedy presented in the draft SOB on Lot 1102:**

✓ a substrate to support an enhanced upland habitat vegetation landscaping scheme. ~~Finally, the remedy is intended to allow for potential future Site use of Lot 1102 as publicly available open space, as well as uses consistent with its industrial zoning status, such as to support parking.~~ RIDEM approved public uses (e.g., open space park).

9. A PCB deed notice, required for any area where PCBs remain at  $\geq 1$  mg/kg, and an environmental land usage restriction required by the RIDEM will be entered into as a joint document, if possible, and will be recorded on the deed as required by the EPA TSCA program and the RIDEM.

BASF is proposing this modified remedial design for the soil component of the remedy under a risk-based approach in accordance with the Toxic Substances Control Act (TSCA), 40 CFR 761.61 (c) and RIDEM Remedial Regulations.

## 2.0 INTRODUCTION

Given this background information, the following Corrective Measures Implementation (CMI) Work Plan (WP) has been prepared for the BASF Facility, formerly owned by Ciba-Geigy, located at 180 Mill Street, Cranston, Rhode Island. **Specifically, this CMI WP proposes remedial actions for the soil component of the remedy associated with the FPA, designated as Lot 1102 (herein referred to as the "Site").** The groundwater and sediment cleanup objectives are discussed in this document, but further remedial design details for groundwater will be provided in a separate CMI WP, to be submitted to EPA and RIDEM for review and approval. A sediment Operation and Maintenance Plan is presented in this document.

The CMI WP details the remedial design for the Site that is outlined in Section 1. The design is based on the Corrective Measures Study (CMS) completed by BASF in June 2016 and approved by the (EPA) in April 2016 (AECOM, 2016a), the EPA's Draft SOB for the Proposed Remedy Determination dated May 25, 2016 (EPA, 2016), included as **Attachment 1**, all the investigations completed to date at the Former Ciba-Geigy Facility in accordance with the Resource Conservation and Recovery Act (RCRA) Corrective Action Program (RCRA Docket No. 188-1088, EPA ID No. RID001194323), consideration of public comment and scientific rationale, and the results of a human health risk evaluation.

Specifically, BASF is seeking approval from the EPA and the RIDEM for this remedial design for soil under a risk-based approach in accordance with the Toxic Substances Control Act (TSCA), 40 CFR 761.61 (c) and RIDEM's Remediation Regulations, DEM-DSR-01-93.

This design is intended to meet the following remedial action objectives:

- a. eliminate direct contact to impacted soil and groundwater; and



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- The surface of the Site will be landscaped and vegetated to support a native upland habitat, and because the Site exceeds 1 acre in size this application will meet state/federal Storm Water pollution prevention and erosion control regulations in FEMA Zones AE and Zone X (**Figure 2**).
- The resulting removal and Site restoration will not require the need for warning signage per RIDEM and/or EPA TSCA regulations per 761.61(a)(4) since the PCB levels remaining at the site will contain < 25 mg/kg PCBs. Therefore, no warning signage will be installed along the periphery of the Site after implementation of the remedy.
- At a minimum, fencing will be installed along the river reach to limit river access (e.g., as a safety precaution given the ten-foot drop between ground surface and the water). A security fence around the property is not proposed, though some form of fence demarcating the FPA property boundary will be installed.
- Develop and adhere to a long-term soil management and cover maintenance plan for EPA and RIDEM review.

### **Groundwater**

Details of groundwater-related pilot study and full-scale work plans will be submitted under separate cover.

- Employ ISCO and monitored natural attenuation (MNA) technologies to reduce upland groundwater VOC impacts to meet site-specific and RIDEM GB standards.
- Employ ISCO technology (ozone reactive wall) to reduce or eliminate site-related VOC-impacted groundwater from discharging into the Pawtuxet River, in the southwest corner of the FPA. This will address all VOC mobility considerations.
- While the ozone system is operating in the southwest corner of the property, estimated 3 to 5 years, it will be locally isolated with the installation of a security fence and signage.
- Monitoring wells will be present across the property until such time as groundwater meets applicable regulatory metrics. Unauthorized access to groundwater monitoring wells will be limited by locking, as appropriate.
- Develop and implement a groundwater operation and maintenance plan.

### **Environmental Land Use Restriction (ELUR)**

An ELUR will be imposed on the Site specifying, at a minimum, the following:

- ~~Property reuse as open space, in whole or in part, in perpetuity.~~
- No residential use is allowed except as may be approved by RIDEM as a Recreational Facility for Public Use, or as Open Space under its remedial regulations.
- No groundwater use except as required for remedy monitoring (groundwater is currently classified as GB).

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1. Remove soils with PCB concentrations  $>25$  mg/kg. Fill excavation with soils stockpiled on-site that contain  $<10$  mg/kg PCB and install cover materials(s) defined as permeable geotextile and impermeable HDPE, as appropriate, as described in bullets 5 and 6, cover with 2 ft of clean soil as defined in bullet #7, and bring to grade as appropriate, all based on the remaining PCB soil concentrations.
2. In the FEMA Floodway, removal of soils with PCB concentrations  $\geq 1$  mg/kg. Replace all excavated soil with clean soil as defined in bullet #7.
3. Remove soils containing elevated VOCs in the SWMU-11 area to the groundwater table and fill excavation with soils stockpiled on-site that contain  $<10$  mg/kg PCB. Install cover material(s) as described in bullets 5 and 6, cover with clean soil as defined in bullet #7, and bring to grade as appropriate, all based on the remaining PCB soil concentrations.
4. Remove additional soils as necessary with PCB concentrations  $\geq 10$  mg/kg such that the 95% UCL target across the site is  $<10$  mg/kg.
5. To ensure PCB leaching potential is minimized, areas with remaining soil containing PCB  $\geq 10$  mg/kg and  $\leq 25$  mg/kg will be covered with an impermeable material, either in-situ concrete where the soils are sequestered below such infrastructure, or cover the surface area with an impermeable HDPE cover material. The areas which are anticipated to require the HDPE cover material are shown on Contract Drawing C-6. The 2 ft clean soil cover defined in item #7 below will also cover all permeable and impermeable cover materials and BASF will seek approval for a variance to the RIDEM Wetlands regulations through the filing of a Preliminary Determination of Applicability. This will include the results of the FEMA floodway modelling which has shown that the installation of the 2-foot clean soil cover will not result in a significant change in the local flood elevations. If a variance is not approved by RIDEM Wetlands for the agreed upon soil and membrane cover requirements, EPA will be notified, and a compromise will need to be entered into by all parties.
6. All areas with PCB  $\geq 10$  mg/kg and  $\leq 25$  mg/kg remaining will also be covered by a uniform permeable geotextile material (extended beyond the outermost 10 mg/kg contour) to function as an impediment to unauthorized invasive activity and as a witness layer as part of the whole site cover. The permeable geotextile will cover all areas including those that need the impermeable cover material and those that have concrete slabs in place over soils  $>10$  ppm mg/kg and  $\leq 25$  mg/kg.
7. All areas with PCB  $>1$  mg/kg will be covered with the permeable witness layer introduced in bullet 6 and by a uniform clean 2-ft soil cover extended beyond the outermost 1 mg/kg contour and tested to meet the applicable RIDEM requirements (the Residential Direct Exposure Criteria) and PCBs  $<1$  mg/kg and in accordance with the Project Technical Specifications (Appendix E). The permeable witness layer need not be installed in the 20-foot wide sewer easement area which is parallel to the warehouse building on the northern side of lot 1102 but this sewer easement area will be addressed in the soil management plan as part of the environmental land usage restriction.
8. The remedial plan described above is intended to meet both TSCA and RIDEM Remedial Regulations, function as an impediment to unauthorized invasive activity and limit impact

to groundwater considerations. In addition, at a minimum, the soil cover will provide a substrate to support an enhanced upland habitat, vegetation landscaping scheme, and potentially to allow for RIDEM approved public uses (e.g., open space park).

9. A PCB deed notice, required for any area where PCBs remain at  $\geq 1$  mg/kg, and an environmental land usage restriction which includes a soil management plan as required by the RIDEM, will be entered into as a joint document, if possible, and will be recorded on the deed as required by the EPA TSCA program and the RIDEM.
10. In all areas on-site, the 2-ft clean soil cover will be defined as in bullet #7. For soils required to fill excavations that will be below the 2-ft soil cover in areas that are outside the FEMA Floodway, soils stockpiled on-site that contain PCBs  $< 10$  mg/kg may be used if included in the TSCA approval and specific soil data supports that the PCB concentrations are  $< 10$  mg/kg.

Specific to the 10 mg/kg metric: For all areas defined with PCBs  $> 25$  mg/kg, the goal will be to achieve  $< 10$  mg/kg at the extent of these excavations, as feasible, in order to minimize the use of impermeable cover material to address leachability issues. Excavations will not extend below the water table (except for the TP-5 area) and may be halted if subsurface obstructions are encountered. If the  $< 10$  mg/kg goal is not achieved in an area designated for excavation, that area will be covered with an impermeable HDPE cover material. Areas with PCBs  $\leq 25$  mg/kg, but  $\geq 10$  mg/kg will be covered with an impermeable HDPE cover material if there is no concrete slab present to prevent leaching into groundwater. The areas which are anticipated to require the HDPE cover material (Nilex 40 mil HDPE, or equivalent) and/or the geotextile (Mirafi 180N or equivalent) are shown on Contract Drawing C-6. As shown on Contract Drawing C-6, there will be no impermeable cover material installed within the Floodway and the amount of impermeable cover material within Zone AE has been minimized such that there will be no reduction in infiltration which will be documented in the Floodway modelling to be submitted with the Wetlands Preliminary Determination Application.

In summary, where PCBs  $< 1$  mg/kg remain - cover with clean soil as defined in bullet #7. Where PCBs  $\geq 1$  mg/kg and  $< 10$  mg/kg remain - cover with cover material and 2 ft clean soil and see bullet #10 for further guidance. Where PCBs  $\geq 10$  mg/kg and  $\leq 25$  mg/kg remain - addition of an impermeable cover material, where there does not already exist an in-situ concrete slab, and permeable geotextile and 2-ft of clean soil and see bullet #10 for further guidance. Remove soils with PCBs  $> 25$  mg/kg - fill excavations as explained in bullet #10, install cover material (s) as described in bullets 5 and 6, cover with clean soil as explained in bullet #7 and bring to grade as appropriate, all based on the remaining PCB soil concentrations.

Full scale contract drawings, technical specifications and plans for the soil remedial measures are provided in the Remedial Design which is presented in **Appendix E**, and key design elements are reviewed below.

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Final landscaping Site wide will be implemented in conjunction with the clean soil cover installation, including in the Floodway. Except, as indicated on the landscaping plans, within the southern portion of the Floodway, no final landscaping measures will be implemented due to the set-up and on-going ISCO ozone pilot program. The final landscaping will be completed following the complete installation of this technology. The Contractor will adhere to the technical specifications about clean soil cover materials, geotextile, final grades and landscaping requirements.

#### 4.2.3 ELUR

An ELUR will be placed on Lot 1102 once remedial activities are complete. The ELUR will specify, at a minimum, the following:

- ~~1. Property reuse as open space, in whole or in part, in perpetuity.~~
- 2-1. No residential use allowed except as may be approved by the Department as a Recreational Facility for Public Use under the RIDEM remedial regulations.
- 3-2. No groundwater uses except as required for remedy monitoring.
- 4-3. Operation and maintenance of the surface cover areas and vegetative support as per an EPA-approved O&M plan.
- 5-4. Annual reporting to the RIDEM for ELUR compliance.
- 6-5. No invasive work below the covered areas is allowed without implementing a RIDEM-approved soil management plan and clean soil cover integrity plan (e.g., as may be required for utility maintenance).

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A template ELUR is included with this submittal in **Appendix G**. Upon completion of the remedial action and approval by EPA/RIDEM, the ELUR will be prepared, completed and filed with the City of Cranston land evidence records.

The template ELUR also includes a General Soil and Groundwater Management Plan ("SGMP") as Exhibit D in **Appendix H** to address soil in the areas at the Property not inclusive of those requiring a SGMP. Following remedial measures, the SGMP will be prepared and submitted for RIDEM approval and filed with the ELUR.

#### 4.2.4 Groundwater Remedial Approach

Groundwater remedial measures will be required to address the non-compliance with the Remediation Regulations GB soil objectives for VOCs and site-specific VOC MPS non-compliance. The remedial measures include soil mixing ISCO for the SWMU-11 area, installation and operation of an ozone ISCO reactive barrier to address migration of VOCs to the adjacent Pawtuxet River, and long-term verification monitoring. A description of the groundwater VOC remedial measures